

ing gear disabled, and masts and sails broken or cut away. On the morning of the 3d, the wind suddenly changed to north-west, and moderated to force 11, barometer rising; during that day and the following, the wind gradually moderated and the barometer rose steadily. The reports of vessels encountering the typhoon were sufficiently numerous and complete, to admit of the accurate tracing of the movement of the centre along the coast of Japan. Owing to lack of space, these reports cannot be given in detail, but all report hurricane winds and very high seas, in which the ships sustained more or less damage. On land, the typhoon was equally disastrous in its effects. The centre passed Tokio at 2:00 a. m. of the 4th (local time); the wind reached a velocity of seventy miles per hour from the northwest, increasing suddenly at 2:00 a. m., to a velocity of one hundred miles per hour. More than 1,000 houses were completely demolished and 2,000 were more or less damaged; twenty-eight persons were killed, and sixty were injured, many seriously. The largest trees were uprooted and all gardens destroyed; at Shiba, the streets were strewn with branches of trees and other debris, and large numbers of birds were killed by the fury of the storm. An immense scaffolding, used in the building of the temple of Hijio-Honto, was blown down, the debris forming a mass more than one hundred feet high. At Yokohama, Kobé and at many villages in the interior, the loss of life and property was very great, many bridges were swept away, and vessels in the harbors dragged their anchors and were driven out to sea. The precipitation attending the typhoon was very heavy, the rainfall at Tokio, amounting to 4.61 inches (117 m. m.) After the passage of the centre over Tokio, the barometer rose rapidly and the typhoon disappeared over the ocean on the 5th. Its progressive movement was about nineteen miles (thirty-five kilometres) per hour; and its diameter, from southwest to northeast, was about one hundred and fifty miles when near Tokio.

II.—This typhoon first appeared to the eastward of Luzon, on the 10th, and moved in a westerly direction towards the coast of China. It entered the China sea by the channel of Bashee, between Luzon and Formosa, on the 12th, and reached the island of Hainan on the 16th, and the Gulf of Tonquin on the 17th. The typhoon was very violent during its passage over the sea, as indicated by the following vessel reports. The ship "James Bailey," which left Hong-Kong on the 14th, reported barometer 29.84 (757.9), wind ne.; at noon of the 15th, the barometer read 29.10 (739.1), wind blowing furiously from the east; at midnight, barometer 28.50 (723.9), wind sw. At 3:00 a. m. of the 16th, the sails were blown from the yards and the wind had increased to a hurricane, and at 4:00 a. m. the foretop-gallant and main-royal masts broke off, and three men were washed overboard. During the next twenty-four hours the wind travelled round the compass, no less than four times, and at 6:00 p. m. of the 17th, the vessel drove ashore on Hainan Sands. The French ship "Taffar-ette," which left Hong-Kong on the 11th, was also wrecked on Hainan reefs. At 1:00 a. m. of the 16th, a tremendous squall struck the vessel, throwing her on her beam ends, the main-mast was cut away to right the ship, when terrific seas broke on board, sweeping the decks. After the violent squall, it became calm suddenly, the sky was clear above the vessel, but the horizon was covered with dense black clouds, and the sky was brilliantly lighted by the vivid lightning which appeared to start from the zenith. The calm lasted twenty minutes, during which time, the barometer oscillated between 27.87 (718) and 28.74 (730), the calm was followed by a terrific squall from the northwest, which hove the vessel down. On the 19th, the ship was abandoned, being a total wreck. The ship "John A. Briggs" left Hong-Kong on the 10th, and the 13th encountered a hurricane from all points of the compass, and lasting twelve hours, with an intermission of two hours, afterwards fresh ne. winds prevailed.

III.—This typhoon apparently developed on the 24th, the circulation of the winds at Manila indicating that the disturbance was southwest of Luzon on that day. The typhoon moved

slowly northward during the 25th, 26th, and 27th; on the 28th, the disturbance was south of Formosa, and on the 29th, it was over the Channel of Bashee, disappearing on the following day to the eastward of Formosa. The lowest barometer reported was at Takao, Formosa, 29.69 (754.0), on the 28th. The only vessel report of this typhoon is the following: 26th, in N. 18° 19', E. 120° 00', the ship "Joseph Hayden" encountered typhoon winds from the northeast, with very heavy sea from the north-northeast, lasting three days.

#### TEMPERATURE OF THE AIR.

The distribution of mean temperature over the United States for the month of September, 1882, is exhibited on chart number ii., by the dotted isothermal lines. The table of mean comparative temperatures in the lower left-hand corner of the chart, shows the average temperature for the month in the several districts, as determined from observations taken at Signal Service stations during the month of September in previous years. The second column shows the mean temperature for the current month; the third column shows the departures of the mean of the current month from the mean of several years. East of the one-hundredth meridian and south of the thirty-seventh parallel of latitude, the temperature ranges from normal in the south Atlantic states to 6°.3 below in the southern slope. West of the one-hundredth meridian and south of the forty-second parallel, the temperature is also below the normal, but the departure is less marked, the range being from 0°.2 in the south Pacific coast region to 2°.8 in the southern plateau district. In the northern sections of the country from the Pacific coast to New England the temperature is generally above the normal, the greatest departure (3°.3) occurring in the extreme northwest; in the Ohio valley, the temperature is normal; on the summit of Mount Washington, 1°.9 above; and on the summit of Pike's Peak, 2°.1 below.

#### DEVIATIONS FROM MEAN TEMPERATURE.

Under this heading, departures exhibited by the reports, from the regular Signal Service stations, are shown in the table of comparative temperatures, on the left-hand side of chart number ii. The following items of interest, in connection with this subject, are reported by voluntary observers:

*Illinois*: Riley, mean temperature, 60°.6, or 0°.4 above the September average for the past twenty-one years. Swanwick, mean temperature, 65°.5, or 3° below the September average.

*Indiana*: Vevay, mean temperature, 69°.12, is about the September average of the past seventeen years. Saint Meinrad, mean temperature, 62°.8, or 0°.5 below the September average of the past seven years. The maximum temperature of the month, 87°, is 3° below the mean maximum temperature, and the minimum, 49°, is 3°.6 above the mean minimum temperature of September for the past seven years.

*Iowa*: Clinton, mean temperature, 61°.6, is about the September normal.

*Kansas*: Lawrence, mean temperature, 69°.3, or 3°.17 above the September average of the past fourteen years. During that period, the highest September mean, 70°.59, occurred in 1881; the lowest 62° 37 occurred in 1868. The maximum temperature of the month, (105° on the 12th,) is the highest recorded during the past fourteen years; the next highest maximum temperature, 91°, occurred in 1881. Wellington, mean temperature, 67°.5, or 1°.7 below the average of the past three years. The mean temperature of the ten days from September 11th to 20th, 76°.7, has been exceeded but once during the present year: viz.: from June 21st to 30th, when the mean was 79°.9. Clay Centre, mean temperature, 68°.9, or 1°.6 below the average of the past two years.

*Maine*: Gardiner, mean temperature, 59°.09, or 0°.51 above the September average of the past forty-six years.

*Maryland*: Fallston, mean temperature, 66°.27, or 0°.71 above the September average of the past eleven years. During that period, the highest September mean, 74°.55, occurred in 1881; the two lowest, 61°.27 and 61°.28, occurred in 1871 and 1879, respectively.

Table of Comparative Maximum Temperatures for the Month of September.

State or Territory.	Maximum for September, 1882, Signal Service.		Highest since Signal Service stations were opened—3 to 11 years.			Highest from any other source.			
	Station.	Temp.	Station.	Temp.	Year.	Place.	Temp.	Year.	Length of Record.
Alabama	Mobile	94	Montgomery	97	1876	Mount Vernon Arsenal	98	1860	33 years.
Do						Huntsville	100	1875	1 "
Arizona	Phoenix	109	Burke's and Yuma	113	1879	Fort McDowell	114	1879	14 "
Arkansas	Fort Smith	99	Little Rock	97	1881	Fort Smith	101	1880	21 "
California	Campo, Los Angeles, and Sacramento	100	Red Bluff	106	1877	Fort Miller	114	1883	13 "
Colorado	West Las Animas	94	Denver	93	1878	Fort Lyon	99	'68 & '75	19 "
Connecticut	New Haven	85	New Haven	100	1881	Columbia	94	1866	9 "
Do						New Haven	92	1864	27 "
Dakota	Fort Buford	100	Fort Sully	107	1874	Fort Randall	107	1863	20 "
Do						Fort Sully	106	1874	14 "
Delaware	Delaware Breakwater	93	Delaware Breakwater	93	1881	Fort Delaware	90	1865	44 "
Dist. of Columbia	Washington	92	Washington	104	1881	Washington	95	1838	68 "
Florida	Jacksonville	94	Jacksonville	98	1875	Fort Jefferson	100	1871	12 "
Do						Fort King	101	1833	10 "
Georgia	Savannah	91	Augusta	97	'75 & '81	Oglethorpe Barracks	99	1845	36 "
Idaho	Fort Lapwai	97	Boise City	96	1878	Fort Boise	103	1874	16 "
Illinois	Springfield	90	Cairo	97	1881	Manchester	102	1864	10 "
Do						Anna	102	1881	7 "
Indiana	Indianapolis	85	Indianapolis	95	1881	Yevay	100	1881	16 "
Do						Laconia	101	1881	7 "
Indian Territory	Fort Supply	102	Fort Gibson	103	1881	Fort Gibson	103	1884	52 "
Do						Fort Sill	103	1871	10 "
Iowa	Des Moines	92	Keokuk	97	1881	Muscotine	103	1861	7 "
Do						Mount Vernon	99	1874	16 "
Kansas	Leavenworth	101	Dodge City	99	'76 & '81	Fort Leavenworth	108	1860	50 "
Do						Clay Center	109	1881	1 "
Kentucky	Louisville	88	Louisville	99	1881	Newport Barracks	96	1864	28 "
Louisiana	Shreveport and Port Eads	93	Shreveport	101	1881	Fort Jesup	100	1824	22 "
Do						Point Pleasant	104	1881	7 "
Maine	Portland	82	Portland	95	1881	Brunswick	96	1825	52 "
Maryland	Baltimore	88	Baltimore	101	1881	Fort Washington	99	1861	37 "
Do						Fallston	102	1881	6 "
Massachusetts	Boston	88	Boston	102	1881	Fort Warren	100	1872	18 "
Michigan	Aipena	88	Detroit and Marquette	97	1874	Thornville	100	1881	3 "
Do						Fort Brady	98	1861	37 "
Minnesota	Saint Paul	91	Saint Paul	94	1878	Fort Snell Ing	92	'88 '77 '78	60 "
Mississippi	Vicksburg	92	Vicksburg	100	1878	Fayette	98	1861	6 "
Do						Columbus	95	1865	9 "
Missouri	Saint Louis	96	Saint Louis	102	1881	Saint Louis	101	1881	41 "
Do						Jefferson Barracks	99	1864	35 "
Montana	Glendive	101	Fort Keogh	96	1879	Tongue River	103	1877	3 "
Do						Fort Benton	101	1878	11 "
Nebraska	North Platte	96	North Platte	101	1881	Clear Creek	103	1881	7 "
Do						Genoa	103	1881	6 "
Nevada	Winnemucca and Pioche	90	Winnemucca	94	'78 & '80	Fort McDermitt	96	'75 & '79	15 "
New Hampshire	Mount Washington	86	Mount Washington	65	1880	Huburn	95	1891	6 "
Do						Dartmouth College	92	'43 & '45	17 "
New Jersey	Sandy Hook	87	Sandy Hook	101	1881	Atco	104	1881	7 "
New Mexico	Silver City and Fort Bayard	87	La Mesilla	103	1879	Fort Cruik	103	'57 & '71	26 "
New York	New York City	89	New York City	100	1880	Penn Yan	102	1881	16 "
Do						Poughkeepsie	100	1849	20 "
North Carolina	Kittyhawk	90	Kittyhawk	95	1880	Fort Johnston	98	1831	54 "
Do									
Ohio	Cleveland	90	Whilmington	95	'75 & '76	College Hill	102	1881	6 "
Do						Cincinnati	100	1868	35 "
Oregon	Umatilla	94	Cleveland and Columbus	98	1881	Fort Haskins	98	1860	9 "
Pennsylvania	Pittsburg	91	Umatilla	95	'77 & '79	Milton	105	1881	3 "
Do						Philadelphia and Pittsburg	102	1881	3 "
Rhode Island	Newport	83	Philadelphia	102	1881	Ellington	103	1881	3 "
South Carolina	Charleston	90	Newport	88	1881	Fort Adams	96	1881	40 "
Do						Fort Moultrie	93	1861	27 "
Tennessee	Nashville	90	Charleston	94	1876	Alken	95	1881	3 "
Texas	Eagle Pass	100	Memphis and Nashville	98	1881	Ashwood	100	1881	3 "
Utah	Salt Lake City	89	Bio Grande	107	1877	Fort Stock on	109	1873	21 "
Vermont	Burlington	82	Salt Lake City	93	1875	Fort Douglas	97	1876	19 "
Virginia	Cape Henry	92	Burlington	90	'80 & '81	Charlotte	94	1880	7 "
Washington T'y	Almota	94	Fort Myer	102	1881	Accotink	104	1881	7 "
West Virginia	Morgantown	81	Dayton	91	1881	Fort Walla Walla	98	1860	10 "
Do			Morgantown	91	1881	Helvetia	94	1881	5 "
Wisconsin	La Crosse, Milwaukee, and Madison	85	Milwaukee	94	1874	Flemington	99	1881	3 "
Do						Fort Howard	98	'26 & '30	30 "
Wyoming	Fort Washakie	90	Edgerton	98	18-1	Edgerton	98	18-1	1 "
			Cheyenne	88	1875	Fort Laramie	99	1871	26 "

**Missouri:** Saint Louis; the Missouri Weather Service reports mean temperature 69°.4, which is about the September normal.

**New Hampshire:** Contoocookville, mean temperature, 64°.2, or 4°.0 above the September average of the past twelve years.

**New York:** Waterburgh, mean temperature, 60°.8, or about the September mean of the past eleven years. Palermo, mean temperature, 58°.1, or 1° below the September average of the past twenty-nine years, and is 9°.7 below the mean of September, 1881. The lowest September mean temperature, 54°.0, occurred in 1867. North Volney, mean temperature, 60°.89, or about the September average of the past fourteen years. During that period, the highest September mean temperature, 69°.24, occurred in 1881; the lowest, 55°.69, occurred in 1871.

**Vermont:** Woodstock, mean temperature, 58°.48, or 1°.83 above the September average of the past eleven years. During that period, the highest September mean, 62°.62, occurred in 1881; the lowest, 49°.0, occurred in 1870; the highest maxi-

imum temperature, 93°, occurred September 7th, 1881; lowest minimum, 22°, occurred September 22d, 1871.

**Virginia:** Wytheville, mean temperature, 64°.26, or 1° above the September average of the past eighteen years. The maximum temperature of the month (86°) has been exceeded in but three years during that period, viz: 88° in 1872; 87° in 1880, and 96° in 1881.

**West Virginia:** Helvetia, mean temperature, 61°.73, or 0°.37 above the September average of the past six years.

#### HIGH TEMPERATURES.

On the 12th, 13th, and 14th, very hot south to southwest winds prevailed over Kansas and Missouri, during which very high maximum temperatures occurred.

The observer at Leavenworth reports: 12th, at 1:00 p. m., a very hot and extremely dry wind set in from the southwest, causing the thermometer to rise rapidly. At 4:00 p. m., the

maximum temperature (101°) occurred, being the highest recorded during September since the establishment of the signal office at that city. The relative humidity fell to seventeen per cent. This hot wind continued through the remainder of the day and on the 13th and 14th. Vegetation was withered and burned up, and out-door labor was suspended.

Professor Snow, of the University of Kansas, at Lawrence, reports: "The month was chiefly noted for the hot-blast of the 12th, which was repeated with somewhat diminished intensity on the 13th, 14th, and 15th. During these simoons, the air was excessively dry, the relative humidity sinking to seven per cent. on the afternoon of the 12th. The fierce dry heat burned the foliage of trees so that they crumbled to powder at the touch of the hand. The nights following these withering days were comparatively cool, the mercury sinking from 105° on the 12th to 65° on the morning of the 13th; and from 101° on the 13th to 66° on the morning of the 14th."

The following note is taken from the "Kansas City Review of Science:" "The hottest September day on record in this vicinity was the 12th, when the mercury reached 104° at Kansas city; 105° at Lawrence, Kansas; 100° at Saint Louis, and about the same at neighboring points, and was accompanied by a fierce, hot wind that scorched vegetation like a flame, and filled the air with clouds of suffocating dust."

At Fort Riley, Kansas, a very hot wind, which was almost suffocating, began on the 12th, at about 11:00 a. m., and continued until 4:00 p. m. At 12:00 m., the thermometer (exposed in the shade) read 103°, and in less than one hour later rose to 108°, and remained at that temperature for about three hours.

Clay Centre, Kansas, 12th: Very hot southwest winds. At 10:00 a. m., the thermometer read 98°; at 12:00 m., 100°; at 12:30 p. m., 104°; at 1:00 p. m., 107°; at 2:00 p. m., 108°; at 2:15 p. m., 110° (highest); at 3:00 p. m., 98°; at 4:00 p. m., 100°. During the prevalence of this hot wind vegetation was completely dried up.

Russell, Kansas 12th and 13th: Very high temperatures; maximum, 104°.

Wellington, Kansas, 12th: Maximum temperature, 101°, is the highest recorded at this place during the past three years.

Clinton, Missouri, 12th: Very hot wind coming directly from the south, began at 9:00 a. m., and continued until 4:30 p. m. The temperature rose rapidly, reaching a maximum of 100°. In some places vegetation was completely parched and dried up.

#### RANGES OF TEMPERATURE AT SIGNAL SERVICE STATIONS.

The monthly ranges of temperature during September, 1882, having varied from 19° to 71° at stations east of the Rocky mountains, and from 30° to 78° on the Pacific coast. The smallest monthly ranges are: Havana, Cuba, 13°; Key West, 19°; Punta Rassa, 20°; Cedar Keys and Galveston, 23°; Port Eads, Louisiana, 26°; Indianola, Texas, and Block Island, Rhode Island, 27°; Charleston, Fort Macon, Montgomery, Provincetown and Savannah, 28°; Hatteras and Portsmouth, 29°; San Diego and New Orleans, 30°. The largest: Campo, California, 78°; Fort Sully, Dakota, and Glendive, Montana, 71°; Fort Buford, Dakota, 69°; Smithville, Dakota, 68°; Fort Bennet, Dakota, and Terry's Landing, Montana, 67°; Tobacco Garden, Dakota, 66°; Fort Lapwai, Idaho, and Fort Washakie, Wyoming, 65°; Deer Lodge, and Fort Keogh, Montana, Eagle Rock, Idaho, Phoenix, Arizona, and Moorhead, Minnesota, 64°; Fort Stevenson and Huron, Dakota, 63°; Bismarck, Dakota, 62°; Colfax, Washington territory, Rapid City, and Yankton, Dakota, and Fort Supply, Indian territory, 61°; Prescott, Arizona, 60°. The greatest daily ranges varied in the different districts as follows:

*New England:* From 14° at Block Island on the 16th, to 30° at Boston on the 18th.

*Middle Atlantic states:* From 17° at Barnegat on the 30th, to 28° at Williamsport the 29th.

*South Atlantic states:* From 16° at Portsmouth on the 2d, to 24° at Augusta on the 14th and at Charlotte on the 15th.

Table of Maximum and Minimum Temperatures for September, 1882.

State or Territory.	Signal Service.			U. S. Army Post Surgeons or Voluntary Observers.		
	Station.	Max.	Min.	Station.	Max.	Min.
Alabama.....	Mobile.....	94	0	Opelika.....	97	0
Do.....	Montgomery.....	53		Auburn.....	52	
Do.....	Do.....			Calera.....	36	
Arizona.....	Phoenix.....	109				
Do.....	Prescott.....	30				
Arkansas.....	Fort Smith.....	99	51	Madison.....	33	
California.....	Campo.....	100	23	Mammoth Tank.....	115	
Do.....	Los Angeles.....	110		Burden.....	115	
Do.....	Sacramento.....	100				
Colorado.....	West Las Animas.....	94	36	Fort Lyon.....	100	
Do.....	Pike's Peak.....	45	8.6	Fort Garland.....	19	
Connecticut.....	New Haven.....	85	44	Southington.....	50	46
Dakota.....	Fort Buford.....	100		Fort L'embina.....	23	
Do.....	Tobacco Garden.....	23				
Delaware.....	Del. Breakwater.....	86	51			
District of Columbia.....	Washington.....	92	44			
Florida.....	Jacksonville.....	94		Fort Barrancas.....	95	49
Do.....	Panama.....	57		Fort Brooke-Tampa.....	95	
Georgia.....	Savannah.....	91		Way Cross.....	100	
Do.....	Atlanta.....	52		Madison.....	48	
Idaho.....	Fort Lapwai.....	97				
Do.....	Eagle Rock.....	28				
Illinois.....	Springfield.....	90		Bunker Hill.....	95	38
Do.....	Champaign.....	40		Lincoln and Riley.....	38	
Indiana.....	Indianapolis.....	85	42	Fort Wayne.....	90	
Do.....	Do.....			Logansport.....	34	
Indian Territory.....	Fort Supply.....	102	41			
Iowa.....	Des Moines.....	92		Indianola.....	97	
Do.....	Davenport.....	36		Nora Springs.....	31	
Kansas.....	Leavenworth.....	101	46	Fort Riley.....	100	
Do.....	Do.....			Russell.....	40	
Kentucky.....	Louisville.....	88	48	Bowling Green.....	58	47
Louisiana.....	Shreveport.....	93	53	New Iberia.....	97	
Do.....	Port Eads.....	93		Alexandria.....		
				Amite City, and		
				Coushatta.....	48	
Maine.....	Portland.....	82	43	Cornish.....	54	
Do.....	Do.....			Orono.....	33	
Maryland.....	Baltimore.....	88	48	Emmitsburg.....	28	
Massachusetts.....	Boston.....	88		Somerset.....	89	
Do.....	Springfield.....	43		Heath and South		
Michigan.....	Alpena.....	88	36	Le.....	38	
Do.....	Escanaba and			Coldwater and		
	Marquette.....	36		Lansing.....	90	
Minnesota.....	St. Paul.....	91		Ousville.....	33	
Do.....	Moorhead.....	24				
Mississippi.....	Vicksburg.....	92		Pass Christian.....	98	
Do.....	Starkville.....	50		Waynesborough.....	40	
Missouri.....	St. Louis.....	96	46	Clinton and		
Do.....	Springfield.....	46		Sedalia.....	88	
Do.....	Do.....			Cornum.....	98	34
Montana.....	Glendive.....	101		Fort Ellis and		
Do.....	Fort Missoula.....	26		Assinaboine.....	25	
Nebraska.....	North Platte.....	96	88	Lincoln.....	100	
Do.....	Do.....			Utica.....	24	
Nevada.....	Winnemucca.....	90	31	Colconda.....	38	
Do.....	Pioche.....	90		Boca.....	20	
New Hampshire.....	Mt. Washington.....	56	17	Monticookville.....	59	
Do.....	Do.....			Grafton.....	33	
New Jersey.....	Sandy Hook.....	87		Atco, New Brun-		
Do.....	Atlantic City and			wick and Re-		
	Little Egg Harbor.....	48		ington.....	90	
Do.....	Do.....			Pequanock.....	42	
New Mexico.....	Silver City and			Deming.....	98	
Do.....	Fort Bayard.....	87				
Do.....	Santa Fe.....	37		Fort Union.....	21	
New York.....	New York City.....	89		West Point.....	93	
Do.....	Buffalo and					
	Rochester.....	43		Cooper-town.....	34	
North Carolina.....	Kittyhawk.....	90		Wade-borough.....	97	
Do.....	Sloop Point.....	50		Murphy.....	41	
Ohio.....	Cleveland.....	90		Trimble.....	91	
Do.....	Toledo.....	43		Westerville.....	41	
Oregon.....	Umatilla.....	94		Fort Klamath.....	24	14
Do.....	Roseburg.....	35				
Pennsylvania.....	Pittsburg.....	91	47	Dyberry.....	32	
Rhode Island.....	Newport.....	83	50			
South Carolina.....	Charleston.....	90	62	Aliendale.....	99	
Do.....	Do.....			Jacksborough.....	48	
Tennessee.....	Nashville.....	10	48	Erin.....	96	
Do.....	Do.....			Corinth.....	41	
Texas.....	Eagle Pass.....	100		Waco.....	100	
Do.....	Fort Worth.....	40				
Utah.....	Salt Lake City.....	59	40	Promontory.....	99	
Do.....	Do.....			Cottville.....	26	
Vermont.....	Burlington.....	82	40	Woodstock.....	84	35
Do.....	Do.....			Chautauque.....	84	
Virginia.....	Cape Henry.....	92		Accotink.....	93	
Do.....	Lynchburg and			Snowville.....	40	
	Chincoteague.....	52				
Washington Ter.....	Albany.....	94				
Do.....	Colfax.....	27				
West Virginia.....	Morgantown.....	81	45	Helvetia.....	82	44
Wisconsin.....	La Crosse.....	85	42	Nellisville.....	82	36
Do.....	Milwaukee.....	85	42			
Do.....	Madison.....	85				
Wyoming.....	Fort Washakie.....	90	26	Fort Bridger.....	23	

*Florida peninsula:* From 16° at Key West on the 11th, to 17° at Punta Rassa on the 2d and 23th and Cedar Keys on the 13th.

*East Gulf states:* From 16° at New Orleans on the 23d, to 26° at Vicksburg on the 21st and at Montgomery on the 28th.  
*West Gulf states:* From 12° at Galveston on the 12th, to 38° at Fort Smith, Arkansas, on the 2d.

*Rio Grande valley:* From 34° at Rio Grande City on the 27th, to 37° at Eagle Pass and Uvalde on the 12th.

*Ohio valley and Tennessee:* From 23° at Morgantown on the 16th and at Cincinnati on the 17th, to 29° at Memphis on the 12th and at Columbus and Pittsburg on the 17th.

*Lower lake region:* From 21° at Detroit on the 9th and at Sandusky on the 10th, to 37° at Rochester on the 30th.

*Upper lake region:* From 21° at Mackinac City on the 9th, to 26° at Port Huron on the 16th and at Escanaba on the 22d.

*Extreme northwest:* From 34° at Saint Vincent on the 1st, to 43° at Fort Stevenson on the 4th.

*Upper Mississippi valley:* From 20° at Cairo on the 28th, to 34° at Des Moines on the 15th.

*Missouri valley:* From 26° at Springfield, Missouri, on the 14th, to 48° at Fort Bennett on the 23d.

*Northern slope:* From 39° at Helena on the 23d, to 52° at Fort Keogh on the 14th.

*Middle slope:* From 22° at Pike's Peak on the 28th, to 42° at West Las Animas on the 11th.

*Southern slope:* From 26° at Henrietta on the 12th, to 35° at Fort Concho on the 13th, Fort Davis on the 16th and at Fort Stockton on the 28th.

*Southern plateau:* From 28° at Fort Grant on the 2d and 20th and 29° at Santa Fé on the 9th, to 49° at Fort Apache on the 21st.

*Middle plateau:* From 32° at Salt Lake City on the 9th, to 50° at Winnemucca on the 5th.

*Northern plateau:* From 35° at Lewiston on the 8th, to 49° at Eagle Rock on the 9th, and 53° at Fort Missoula on the 13th.

*North Pacific coast region:* From 31° at Portland on the 26th, to 40° at Roseburg on the 21st.

*Middle Pacific coast region:* From 24° at San Francisco on the 20th, to 32° at Sacramento on the 1st.

*South Pacific coast region:* From 22° at San Diego on the 19th, to 58° at Campo on the 23d.

#### FROSTS.

The dates of the occurrence of frosts are given below. In the various states where they were general, the dates only are given; in those states where they were reported less frequently and by only a few stations, the names of the places, with the dates of occurrence, are given.

*Arizona:* Fort Verde and Prescott, 18th; Fort Apache, 19th, 20th.

*California:* Campo, 18th, 19th, 27th, 30th.

*Colorado:* 1st to 7th, 8th, 11th, 12th, 17th, 18th, 19th, 22d, 23d, 24th, 27th, 28th, 30th.

*Connecticut:* Southington, 13th.

*Dakota:* 20th to 24th, 28th, 30th.

*Idaho:* At Mission, 6th, 29th; Eagle Rock, 19th to 22d.

*Illinois:* 22d to 27th.

*Indiana:* 22d, 23d, 24th.

*Iowa:* 19th to 24th, 26th, 27th.

*Kansas:* Clay Centre, 2d, 29th.

*Kentucky:* Lexington, 22d.

*Maine:* 13th, 27th, 28th.

*Maryland:* Baltimore, 29th; Emmittsburg, 28th, 29th; Sandy Springs, 29th; Ocean City, 29th, 30th.

*Massachusetts:* Westborough, 13th; Williamstown, 30th.

*Michigan:* 21st to 27th.

*Minnesota:* 19th to 24th, 30th.

*Missouri:* 21st, 22d.

*Montana:* 8th, 19th to 23d, 28th, 29th, 30th.

*Nebraska:* 2d, 19th to 22d, 29th.

*Nevada:* Carson City, 4th, 8th, 9th, 20th, 21st, 26th, 27th, 28th; Winnemucca, 26th.

*New Hampshire:* Grafton, 13th, 24th; New Market, 13th, 28th; Mount Washington, 5th, 12th, 16th, 17th, 26th, 27th; Milan, 12th.

*New Jersey:* Pequannock, 13th.

*New Mexico:* Santa Fé, 20th.

*New York:* 9th, 10th, 13th, 23d to 28th, 30th.

*Ohio:* Westerville, 23d; Toledo, 24th; New Athens, 4th, frost reported to have occurred in the lowlands.

*Oregon:* Albany, 16th, 28th; Fort Klamath, 23d; Roseburg, 29th.

*Pennsylvania:* 13th, 24th, 25th, 28th, 29th, 30th.

*Rhode Island:* Newport, 13th.

*Tennessee:* Austin, 24th; Ashwood, 23d, light frost reported to have occurred eight miles west of station.

*Utah:* Salt Lake City, 20th; Coalville, 20th, 21st.

*Vermont:* 10th, 13th, 27th, 28th.

*Washington territory:* Colfax, 7th, 8th, 30th; Dayton, 29th; Bainbridge Island, 28th, 29th.

*Wisconsin:* 19th to 24th, 26th, 27th.

*Wyoming:* 1st, 18th to 23d, 28th, 29th.

Frosts injurious to vegetation have been reported as follows: Cheyenne, Wyoming, 1st: The first killing frost of the season occurred on this date.

Fort Keogh, Montana, 22d: Damaging frost occurred this morning; melons, tomatoes, and other vegetable were seriously injured.

Fort Washakie, Wyoming, and Fort Shaw, Montana, 19th: Killing frost.

Pike's Peak, 18th: The telegraph wires were covered with a coating of frost one inch thick; vegetation killed.

Campo, California, 18th: Very heavy frost; vegetation completely killed; minimum temperature, 22°.

Riley, Illinois, 22d: First frost of season; in the lowlands corn was damaged and melon and pumpkin vines were killed.

Clinton, Iowa: The light frosts of 22d, 23d and 24th caused some damage to the late corn.

Cresco, Iowa, 23d: First killing frost of the season; corn injured.

Nora Springs and Des Moines, Iowa, 23d: Killing frost.

Northport, Michigan, 25th: Corn and vines injured by frost.

Clear Creek, Nebraska, 21st: Heavy frost, injuring corn, and killing vines.

De Soto, Nebraska, 23d: Killing frost.

Grafton, New Hampshire, 13th: Killing frost.

Waterbury, New York, 10th: Frost killing tender vegetation.

Fallsington, Pennsylvania, 13th: Corn and vines killed in lowlands; 30th, damaging frost.

Clinton, Illinois, 24th: Reports from De Witt and adjacent counties state that the recent frosts have proved disastrous to corn, in checking its growth and causing it to mature too early.

Dexter, Illinois, 24th: The recent frosts have ruined corn in this locality.

Urbana, Illinois, 27th: The frosts of the past few nights have done material damage to the corn crop in this and adjoining counties. Half of the crop is matured beyond injury, but the other half, which is generally on the low grounds, has been so injured that it will not mature.

#### ICE.

The formation of ice has been reported as follows:

Tobacco Garden, Dakota, 23d.

Fort Bennett, Dakota, 23d.

Huron, Dakota, 21st.

Fort Washakie, Wyoming, 19th, ice formed to a thickness of one-fourth of an inch.

Fort Apache, Arizona, 21st.

Dayton, Washington territory, 29th.

Alexandria and Olivet, Dakota, 23d.

Charleston, Illinois, 24th.

Fort Madison, Iowa, 21st, 23d.

Genoa and Clear Creek, Nebraska, 21st.

Factoryville, New York, 30th.

Coalville, Utah, 20th, 21st.

Pagosa Springs, Colorado, 19th, 20th, 21st, 28th